OPACITY DETERMINATION AND EXCESS EMISSIONS REPORTING

Purpose

This Meteorology and Air Quality Group (MAQ) procedure describes the process to document and report opacity readings of smoke and visible emissions as required by 20.2.61 NMAC, Smoke and Visible Emissions. This procedure also addresses reporting of excess emissions to NMED as required by 20.2.7 NMAC, Excess Emissions During Malfunction, Startup, Shutdown, or Scheduled Maintenance.

Scope

This procedure applies to individuals in MAQ assigned to record and report smoke readings at LANL sources having a visible emissions (opacity) standard under New Mexico Administrative Code 20.2.61 NMAC. MAQ will be notified by the Support Services Contractor whenever a reading is to be made. This procedure does not cover the reading of the opacity, which may be performed by trained MAQ or Support Services Contractor personnel.

In this procedure

This procedure addresses the following major topics:

Signatures

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Approved by: Terry Morgan, QA Officer	Date: 06/15/05
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11/1/05

General information about this procedure

Attachments

This procedure has the following attachments:

Number	Attachment Title	No. of pages
1	Hazard Review	2
2	Visible Emission Observation Form	1

History of revision

This table lists the revision history and effective dates of this procedure.

Revision	Date	Description of Changes
0	5/27/99	New document.
1	5/7/03	Quick-change revision to update names of organizations and add HCP as attachment.
2	06/16/05	Expanded scope to include all sources having opacity standard; included excess emission reporting; removed HCP.

Who requires training to this procedure?

The following personnel require training before implementing this procedure:

- Personnel assigned to track or make smoke readings.
- Personnel reporting excess emissions.

NOTE: Those making smoke readings must be trained and certified through the smoke reading class for the EPA METHOD 9 (Wrangel Method) (offered through the State of NM). Making smoke readings is not covered by this procedure. Individuals trained to the smoke reading method must be re-certified every six months.

Training method

The training method for this procedure is **read-only** (**self-study**) and is documented in accordance with the procedure for training (MAQ-024).

Prerequisites

In addition to training to this procedure, the following training is also required prior to performing this procedure:

- MAQ-011, “Logbook Use and Control”
- EPA METHOD 9 (Wrangel Method) (offered through the State of NM) -- for those making smoke opacity readings.

General information, continued

Definitions specific to this procedure

Excess Emissions: the emission of air contaminants in excess of an applicable emission limitation or requirement, including requirements for control of fugitive emissions. (20.2.07 NMAC Definitions)

Malfunction: Any sudden and unavoidable failure of air pollution control equipment, process equipment, or process to operate in an expected manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable equipment breakdown shall not be considered a malfunction. (20.2.07 NMAC Definitions)

Opacity: the degree to which emissions reduce the transmission of light and obscure the view of an object in the background. (20.2.61 NMAC Definitions)

Startup: the setting into operation of any air pollution equipment, process equipment, or process for any purpose, except routine phasing in of process units. (20.2.07 NMAC Definitions)

Shutdown: the cessation of operation of any pollution control equipment, process equipment, or process for any purpose, except routine phasing out of process units. (20.2.07 NMAC Definitions)

Visible Emissions: particulate or gaseous matter which can be detected by the human eye. (20.2.61 NMAC Definitions)

References

The following documents are referenced in this procedure:

- 40 CFR 60, Appendix A, Method 9, "Visual Determination of the Opacity of Emissions from Stationary Sources"
- 20.2.7 NMAC, "Excess Emissions During Malfunction, Startup, Shutdown, or Scheduled Maintenance"
- 20.2.61 NMAC, "Smoke and Visible Emissions"
- Permit No. P100 (Draft), LANL Operating Permit
- MAQ-011, "Logbook Use and Control"
- MAQ-024, "Personnel Training"

Note

Actions specified within this procedure, unless preceded with "should" or "may," are to be considered mandatory guidance (i.e., "shall").

Opacity determination

Need for opacity readings

The regulatory driver for this activity is the New Mexico Administrative Code, 20.2.61. 20.2.61 NMAC does not specify when opacity readings should be performed. Opacity standards, however, are most likely to be exceeded when sources switch from natural gas to fuel oil, when sources perform cold startups (especially if using fuel oil), and when malfunctions occur (see definitions). During these activities, sources should perform opacity readings. The opacity reading will document that the standard was not exceeded, or provide input to report under 2.20.7.

Sources subject to opacity standards

The following sources are subject to opacity standards and excess emission reporting:

- Asphalt Plant
- Boilers & Heaters, including TA-21 Steam Plant
- Internal Combustion, including TA-33 Generator & Standby Generators
- Power Plant at TA-3, building 22

Performing work safely

DO NOT perform work under conditions you consider unsafe. Before beginning work described in this procedure, review safety needs and requirements, identify hazards, and develop hazard mitigation measures. Be aware that facility configurations and hazards may change between visits.

Stormy weather – Reschedule or delay work activities as necessary to avoid areas experiencing severe or dangerous weather.

Recording readings

Notification of need for opacity readings

Support Services Contractor personnel will normally conduct the readings and will notify ENV-MAQ in advance whenever a reading is required. If **Support Services Contractor** cannot conduct the reading, arrangements must be made for another trained person to make the reading. An adequate opacity reading by the Wrangel method cannot be done at night; thus no readings can be done after dark.

Conduct opacity reading

The **opacity observer** chooses a strategic location. The site path chosen and the observation must be in accordance with the rules of the EPA Method 9 (Wrangel Method). Use the latest version of the example form in Attachment 2 (Visible Emission Observation Form) to record the readings. Make all entries in accordance with the requirements of MAQ-011.

Minimum observation time period

Method 9 usually requires at least 24 observations (6 minutes) for a complete data set. For sources subject to 20.2.61 NMAC, the minimum time period for taking opacity readings shall be 10 minutes (40 observations). Good measurement practice is to take more than the bare minimum required, and it may be necessary to take more than one data set to defend the observations.

Opacity standard

The visible emissions from LANL sources cannot equal or exceed an opacity of 20%, unless otherwise indicated by permit.

Opacity exceeds the standard

If the average opacity reading is 20 % or over, the **opacity observer** (either support services contractor or MAQ individual) *immediately* notifies the MAQ Operating Permit Team Leader.

MAQ Operating Permit Team Leader or **team member** must verbally report the reading to the NMED within 24 hours and follow up with a written report within 10 days using NMED's Excess Emission Form (pursuant to the requirements in 20.2.7 NMAC Section 110). The report must include why it occurred and what is being done to mitigate it.

Reporting and recording readings

The **opacity observer** submits the completed visible emission observation form to the ENV-MAQ Title V Operating Permit team within 10 working days. The **Title V Operating Permit team** reviews the observation form and files it in the MAQ records room.

Records resulting from this procedure

Records

The following records are generated as a result of this procedure (**NOTE**: logbooks are controlled according to requirements in MAQ-011):

- Completed Visible Emission Observation Form in the Smoke Readers Logbook
- Excess Emission Reports

Click here to record “self-study” training to this procedure.

HAZARD REVIEW

Work tasks/Steps	**Hazards, Concerns, and Potential accidents; Likelihood/ Severity**	**Controls, Preventive Measures** *(e.g., safety equipment, administrative controls, etc.)*	**Hazard Level** *from IMP 300-00-00 Hazard Grading Matrix*
Follow steps in this procedure to measure opacity of smoke plumes in the field at various sites.	None.	None.	Low

Wastes or residual materials resulting from process

None.

Emergency actions to take in event of control failure

For all injuries, provide first aid and see that injured person is taken to Occupational Medicine (only if immediate medical attention is not required) or the hospital. Notify supervisor and group office as soon as possible.

VISIBLE EMISSION OBSERVATION FORM

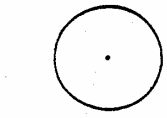
NEW MEXICO HEALTH AND ENVIRONMENT DEPARTMENT

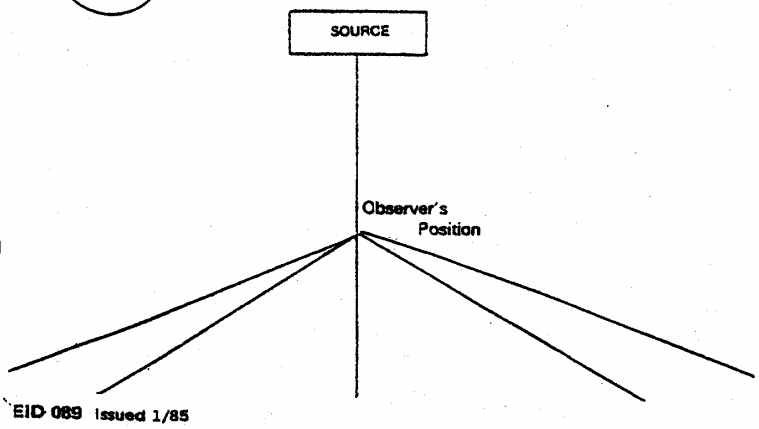
Environmental Improvement Division
RECORD OF VISUAL DETERMINATION OF OPACITY

OURCE				OBSERVATION DATE				START TIME		STOP TIME	
LOCATION				Sec. / Min.	0	15	30	45	Sec. / Min.	0	15	30	45
Type of Source	Type of Control Equipment			1					13				
Describe Emission Point (top of stack, etc.)				2					14				
Height Above Ground Level Feet	Height Relative to Observer Feet			3					15				
Distance from Observer Yards	Direction from Observer			4					16				
Description of Plume (stack exit only) ☐ Lofting ☐ Trapping ☐ Looping ☐ Fanning ☐ Coning ☐ Fumigation				5					17				
Emission Color	Plume Type ☐ Continuous ☐ Fugitive ☐ Intermittent			6					18				
Water Droplets Present? ☐ NO ☐ YES If YES, droplet plume is ☐ Attached ☐ Detached				7					19				
At what point in the plume was opacity determined?				8					20				
Describe Background (i.e. blue sky, trees, etc.)				9					21				
Background Color	Sky Conditions			10					22				
Wind Speed mph	Wind Direction (i.e. from North to South)			11					23				
nbient Temperature °F	Wet Temperature °F	Relative Humidity %		12					24				

COMMENTS:	Average Opacity / Range of Opacity Readings Min.: Max.:
	OBSERVER (please print) Name: Title:
	Signature / Date
	Organization / Certification Date

Draw Arrow in North Direction





IMPORTANT: Please indicate the following by sketch:

I acknowledge receipt of a copy of these visible emissions observations.

Signature: _____

Title: _____

Date: _____

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